



How It's Done

VIDEO FORMAT CONVERSION

by Charles Amyot

The popularity and interactivity of Facebook, Skype, Google Earth, YouTube, and other Web-, mobile-, and computer-based content are driving broadcasters and professional AV departments to incorporate content from such sources into their productions. So ubiquitous are these platforms that today's viewers expect to see them within daily news broadcasts as well as video presentations, such as those commonly found in corporate productions and house of worship services.

The challenge in bringing such content to air or the big screen lies in converting often lower-resolution computer-based video to a broadcast format that holds up on larger-format screens. A picture just 430 by 230 simply is too small for use in HD broadcasts; upscaling is a must. A further challenge facing production is the task of cropping and scaling such content so that it's an attractive and meaningful enhancement that is consistent with surrounding video content.

Today's better scan converter systems give broadcasters and professional AV production teams the tools to meet these challenges. By accepting a DVI input, upscaling and converting video (SD/HD SDI), and providing an output (digital and/or analog) that can be switched into live production or stored to a server, scan converters make it easy to get computer-generated content to air. Additional tools give operators the ability to select a specific area of the canvas to output or even to select background color to facilitate downstream keying applications.

With a variety of scan converters on the market, it can be difficult to know what the best choice would be. In general, the ease of use and available functionality together determine how well a system will enable users to incorporate computer-generated content into their productions successfully. For applications in which speed and ease of use are critical, scan converters that provide computer-based interfaces offer an



The Matrox Convert DVI Plus, an HD-SDI Scan Converter

advantage over those relying on knobs and buttons.

Working at the computer with a mouse, users can simply drag a box around the part of the screen—the full screen or just a portion—that should be output via the scan converter. In addition to enabling “region of interest” selection, some systems’ software interface includes a live preview pane for scaling and positioning on-screen content in context, which also serves and replaces a live preview monitor.

Full-screen display of computer-generated content is common, particularly for businesses and houses of worship using PowerPoint or ProPresenter, but scan converters also can facilitate the incorporation of this content in over-the-shoulder windows and lower-thirds. By selecting the appropriate area of interest and outputting a color on the rest of the screen, the

user enables downstream systems to remove all but that area, effectively creating the desired visual integration into the broadcast or video presentation.

The quality of converted content can be maximized through several means. During conversion, the scan converter takes the signal from the computer and transfers it from a computer colorspace (RGB) to a broadcast colorspace (YUV). Ideally, before performing this step, the system first will convert the computer's 8-bit signal to a 10-bit signal. Inserting this processing step, the system can render a more accurate description of the actual color. Built-in SD pixel aspect ratio compensation mitigates unwanted visual effects caused by the shift from the 1:1 pixel aspect ratio typical of computers and the rectangular 2:1 ration common in SD broadcasts.

Additional processing to eliminate flicker also can ensure a much more viewable result. Video from computer-based systems is progressive, and broadcast video is often interlaced. As a result, conversion from the former to the latter can introduce flicker and hard edges. An automated antiflicker filter can remove these impairments.

Charles P. Amyot is a product manager for Matrox Video Products Group. Read the full tutorial on avtechnologyonline.com.

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The Matrox Convert DVI Plus helps creating broadcast-quality video from computer applications such as Skype, YouTube, and Google Earth, as well as video games, Web browser sessions, and mobile phones. Learn more in this webinar on avtechnologyonline.com/jan12

